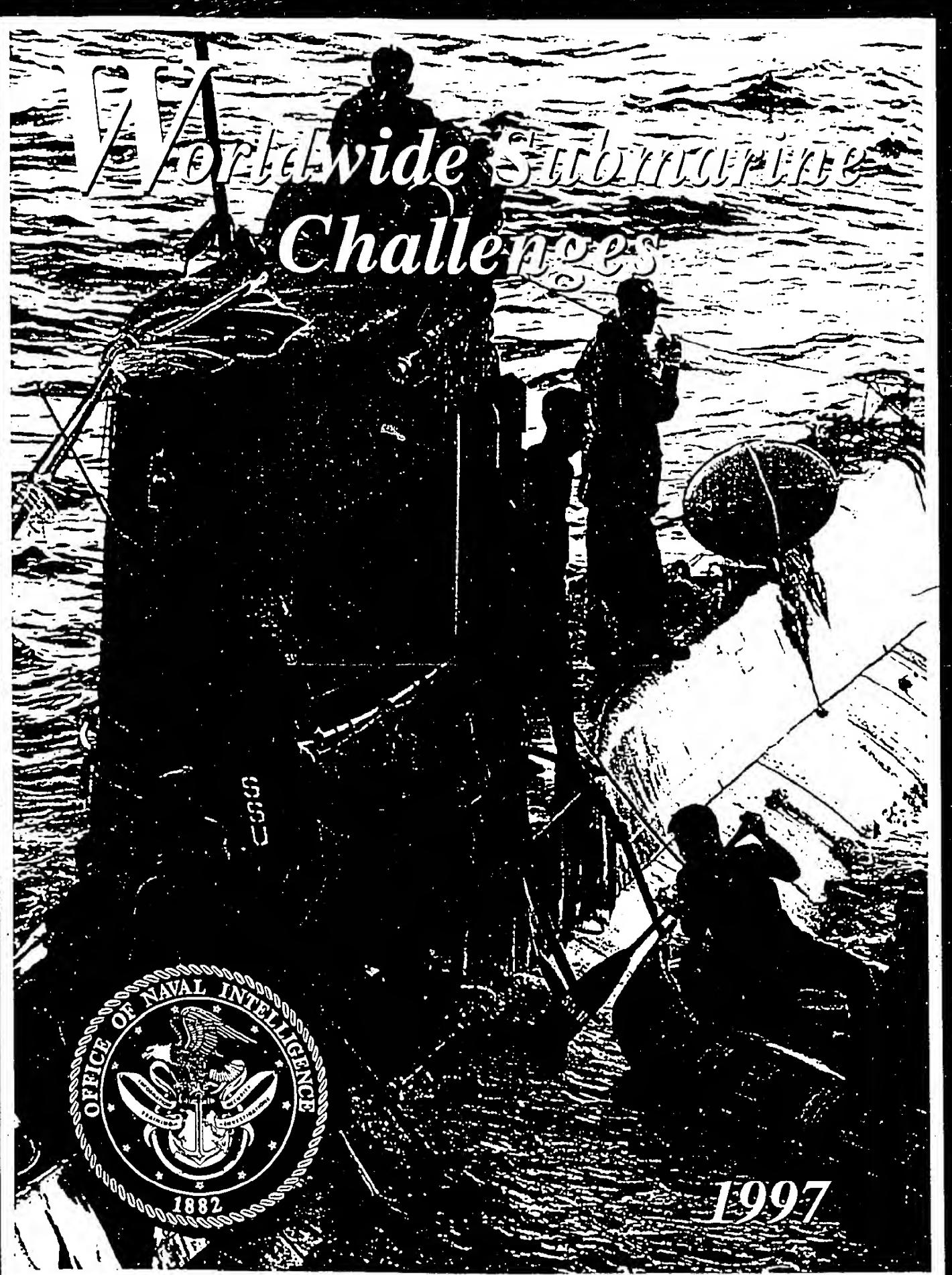


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Worldwide Submarine Challenges



1997

CHINA: INVESTING FOR THE FUTURE— NATIONAL GOALS

CHALLENGERS

"The Chinese Navy should exert effective control of the seas within the first island chain. Offshore should not be interpreted as coastal as we used to know it. Offshore is a concept relative to the high seas. It means the vast sea waters within the second island chain."

General Liu Huaqing



China is investing in its submarine technology base with an eye toward building a force capable of carrying out its national defense goals.

The effectiveness of modern long-range land-attack cruise missiles has convinced the Chinese leadership that the first line of China's maritime defense must be moved hundreds of miles out to sea. Extending China's maritime influence out to the second island chain is a goal toward which the Chinese Navy continues to work, acquiring modern weapon systems as it transforms itself from a coastal defense navy to a force capable of sustained open ocean operations. The Chinese defense budget has continued to grow since 1987 to support acquisition of this new, more capable force.

The role of the Chinese submarine force is evolving as its operations move farther from the coast. The Chinese have assigned priorities to their mission areas as follows, beginning with the most immediate goal, and ending with the longest term goal:

- Safeguard China's territorial integrity and national unity. This includes China's claim over Taiwan and portions of the Spratly Islands.
- Conduct a continuous intelligence gathering operation to provide essential support to joint force and Sino-American naval patrols.
- Defeat any attempt to challenge China's submarine force by establishing blue-water presence beyond China's first line of defense.
- Have sufficient nuclear retaliatory forces. This is one of the major long-range strategic goals.



"The development of nuclear powered submarines is the chief objective of this century."

Admiral Zhang Lianzhong
Former Chief of the Naval Command

C HINA: OPERATIONS

CHALLENGES

Most PRC submarine operations are conducted in the vicinity of their home bases, usually within 20 nautical miles of the coast. Each of the three fleets has designated areas for these operations.

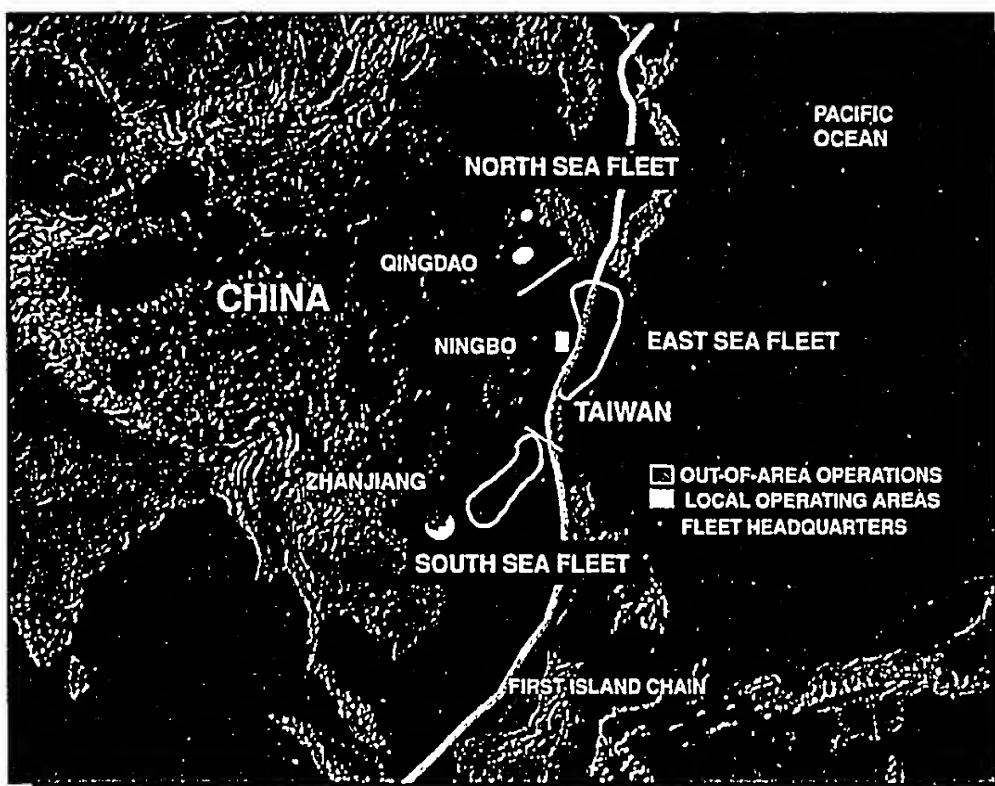
Out-of-area operations are conducted in the outer reaches of the East China Sea and in the area of the Taiwan Strait. These operations demonstrate the submarine force's contribution to the two primary objectives—control of the seas inside the first island chain and support to the national objective of the reunification of Taiwan with China.

Submarines will have an increasing role in China's deterrence strategy. Should war involving China break out in East Asia, China's nuclear-powered attack submarines would conduct merchant blockade missions and operations against surface warships. Its large diesel submarine force would be tasked with inserting special operations troops, covert mining, and merchant blockade missions.



An exercise involving some of these missions occurred during March 1996 in the Taiwan Strait. This exercise was timed to occur just before the national election in Taiwan. One of the two KILO SSNs recently acquired from Russia participated in this exercise. Other participants included the HAN SSN shown above and a ROMEO SS.

CHINESE SUBMARINE OPERATING AREAS



CHINA: GENERAL PURPOSE FORCE CONSTRUCTION AND ACQUISITION

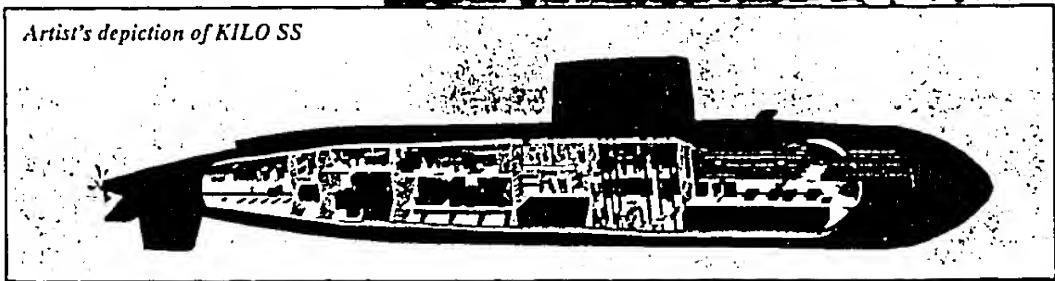
CHALLENGES

China's current large force of aging ROMEO and MING diesel submarines is not capable of supporting the country's long term regional aspirations. To remedy this, China has embarked upon a modernization program to upgrade its submarine fleet with indigenously produced SONG SS diesel-electric submarines and the new construction KILO SSs acquired from Russia.

While conventional submarines do not have the global range of nuclear-powered submarines, they can be used to enforce China's claims to Taiwan and the Spratly Islands.



The SONG SS is China's first new design diesel-electric submarine in 23 years. It was launched from China's Wuhan Shipyard in 1994 and is currently undergoing trials. The SONG SS incorporates a more hydrodynamically efficient hull form, a single shaft, and a highly skewed 7-bladed propeller. It is expected to be the first Chinese submarine capable of firing a submerged-launch antiship cruise missile. Additional units of this new class are expected.

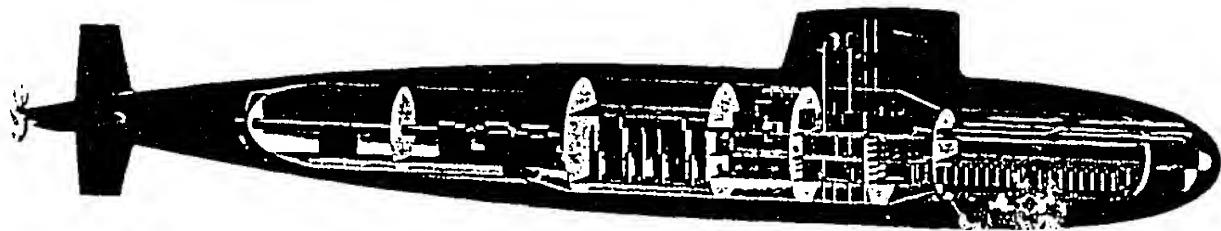


The third of four Russian KILO diesel submarines ordered by China will be launched in St. Petersburg, Russia, and should be delivered in 1997. A fourth and final unit is expected to be delivered in 1998. These last two units are an upgraded variant of the KILO design known as Project 636. This upgraded KILO is one of the quietest diesel submarines in the world. The Project 636 Class previously has not been exported, and to date has only seen service with the Russian Navy. The acquisition of these improved KILOS will provide the Chinese technological improvements in the areas of sonar design and quieting. In addition, KILOs are exported with a weapons package that includes both wake-homing and wire-guided acoustic homing torpedoes.

CHINA: GENERAL PURPOSE FORCE CONSTRUCTION

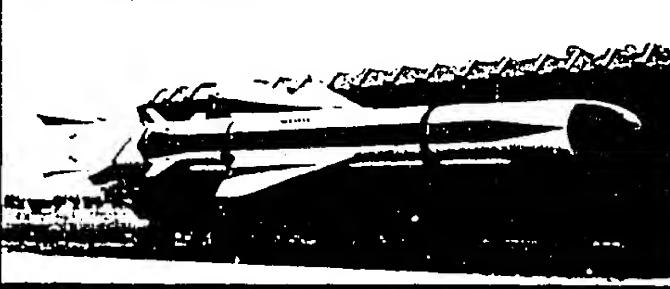
CHALLENGES

Artist's depiction of TYPE 093 SSN

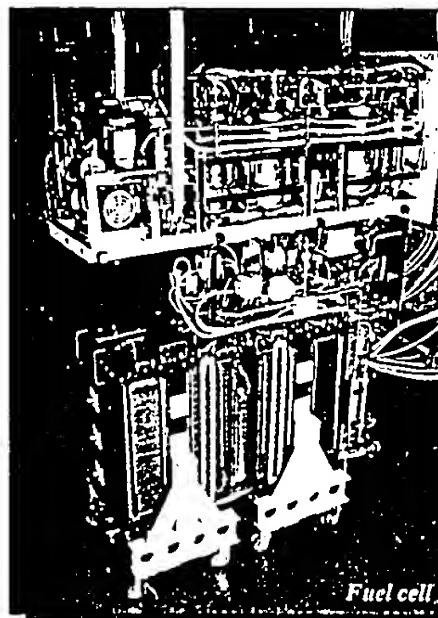


Nuclear submarines are an important symbol of China's status as a regional power. The Chinese operate five HAN SSNs and are designing a new SSN for construction in the next century. This TYPE 093 SSN will be a multipurpose nuclear attack submarine with quieting, weapons, and sensor systems improved over those currently deployed on HAN SSNs. The TYPE 093 will be comparable to Russian second generation designs from the late 1970s, such as the VICTOR III SSN. Construction will occur at Bohai Shipyard, with the launch of the initial unit soon after the turn of the century. In addition to torpedoes and possible ASW missiles, the TYPE 093 is expected to carry a submerged-launch antiship cruise missile, probably a follow-on to the indigenously produced C801.

C801 antiship cruise missile



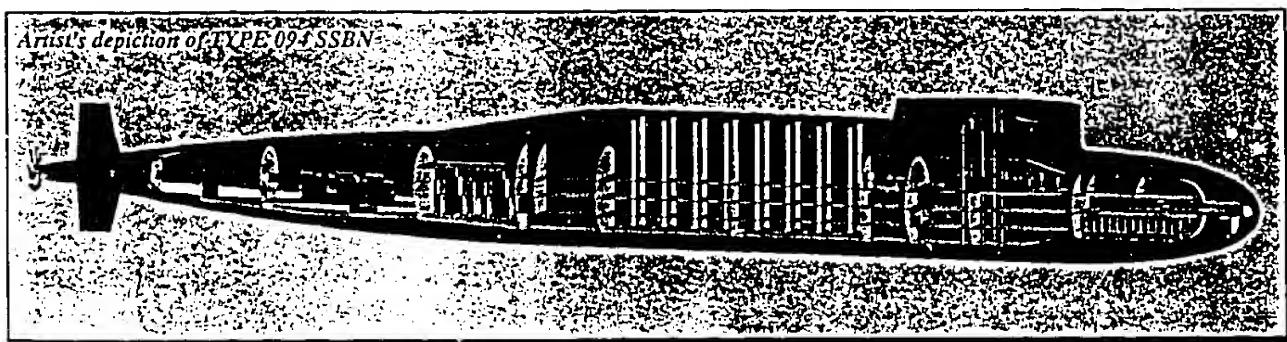
China will continue to focus on reverse engineering technology imported from Russia and the West to its indigenous-produced diesel-electric submarines. The next generation of Chinese diesel-electric submarines may now be in the design stage and could incorporate an Air Independent Propulsion (AIP) system. The Western fuel cell shown might be the heart of a methanol fueled AIP plant being developed for submarine applications. It is one of the many AIP options potentially available to the Chinese.



Fuel cell

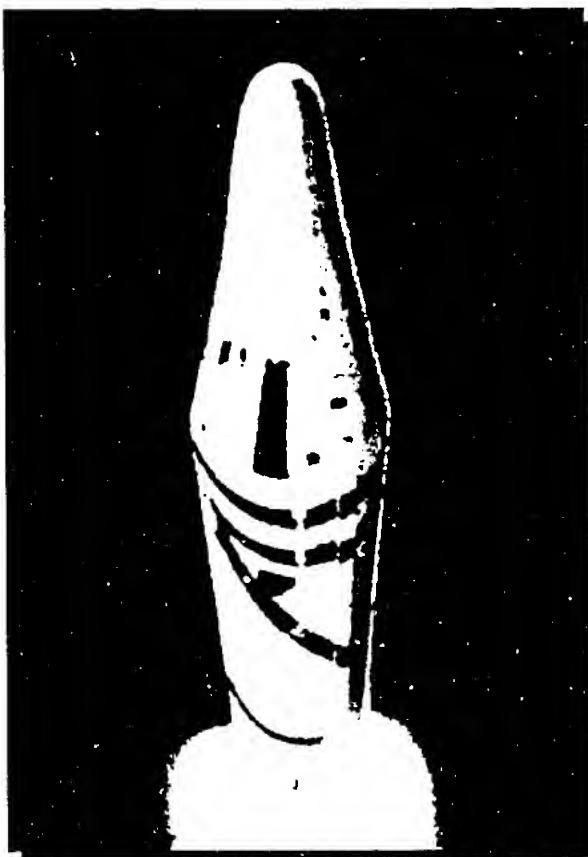
CHINA: SSBN FORCE CONSTRUCTION CHALLENGES

The XIA SSBN is currently China's only ballistic missile submarine and is expected to see service into the next century. The importance the Chinese place on SSBNs can be seen in their announced long term national goal of attaining a survivable nuclear retaliatory force. While the XIA SSBN design has fallen short of expectations, the Chinese are busy designing an SSBN designated the TYPE 094 to be constructed early in the next century. It will take advantage of the modern Russian and Western submarine technologies that the Chinese are acquiring today.



The TYPE 094 will be the largest submarine ever constructed in China. It is expected to be a dramatic improvement over the sole XIA Class SSBN, with improved quieting and sensor systems, and a more reliable propulsion system. Furthermore, the TYPE 094 will likely carry 16 newly designed missiles, which will provide a marked increase in both number and capability over the 12 missiles carried on the XIA SSBN. TYPE 094 construction will take place at Bohai Shipyard, with the launch of the initial unit occurring early in the next decade.

The TYPE 094 SSBN will carry the new JL-2 ballistic missile with a range of over 4,000 nautical miles. When deployed in the next decade, this missile will allow Chinese SSBNs to target portions of the United States for the first time from operating areas located near the Chinese coast.



Artist's depiction of new JL-2 submarine-launched ballistic missile

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CHINA: FORCE COMPOSITION

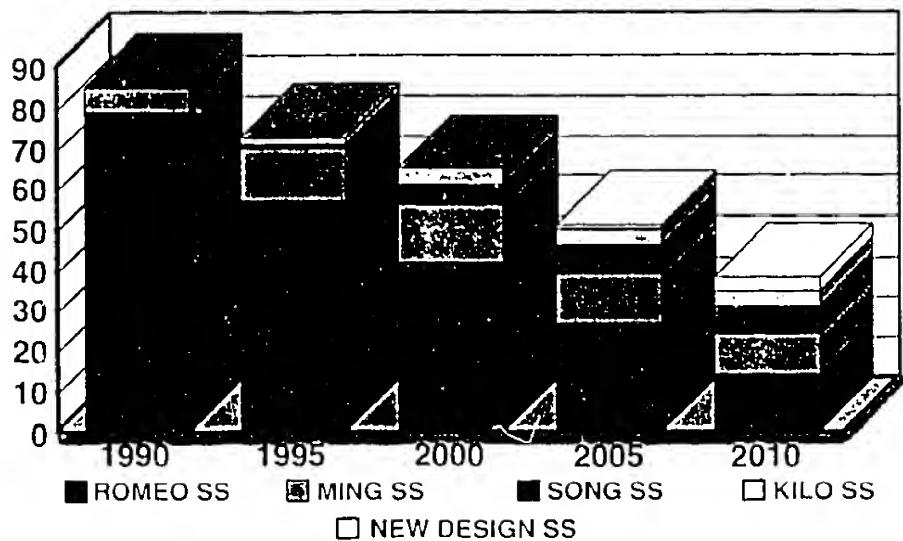
CHALLENGES

The Chinese are aggressively pursuing sophisticated under-sea warfare technology to modernize their submarine force. The conservative growth rate anticipated for their nuclear submarine force reflects China's successful integration of improved technology with each new submarine.

Although China possesses the largest number of conventional submarines in the world, the majority of these units use dated technology. Acknowledging this problem, China has already begun to eliminate these units and will produce smaller numbers of more capable submarines.

In the near term, the Chinese probably will continue to operate their submarines in areas near their homeports. Large scale exercises are likely to occur only once or twice a year, and long deployments will be few. Looking farther into the future, Chinese submarines can be expected to increase the number of deployments made out of local waters.

DIESEL SUBMARINE FORCE LEVELS



China has a growing economy and is conducting increasingly complex naval operations. If current acquisition and construction programs prove successful, China will possess the most challenging submarine force outside of Russia throughout the next decade.